Narragansett Electric
A National Grid Company

Terry L. Schwennesen
General Counsel

July 22, 2004

VIA HAND DELIVERY & ELECTRONIC MAIL

Luly E. Massaro, Division Clerk
Rhode Island Division of Public Utilities & Carriers
89 Jefferson Boulevard
Warwick, RI 02888

Re: **Narragansett Electric Company, Petition for Amendment of Meter Accuracy and Testing Requirements Prescribed Under Section VII of Rules Prescribing Standards for Electric Utilities; *Pre-filed Testimony of Peter D. Yarger and Laurie T. Brown - Docket No. D-04-16***

Dear Ms. Massaro:

Enclosed on behalf of The Narragansett Electric Company, please find an original and four (4) copies of pre-filed testimony of Peter D. Yarger and Laurie T. Brown in the above-captioned proceeding.

Thank you for your attention to this matter. Please feel free to contact me if you have any questions regarding this transmittal.

Very truly yours,

Terry L. Schwennesen
Attorney for Narragansett Electric Company

Enclosures

cc: Thomas Ahern, Administrator
John Spirito, Esq., Division Chief of Legal Services
Jim Lanni, Associate Administrator
Al Contente, Engineer (Electric)
Paul Roberti, Assistant Attorney General

The Narragansett Electric Company

Petition to Amend Section VII, Meter Accuracy and Testing, of the Rules Prescribing Standards for Electric Utilities

Testimony

July 22, 2004

Submitted to:
State of Rhode Island and Providence Plantations
Division of Public Utilities and Carriers

Submitted by:

Narragansett Electric
A National Grid Company

THE NARRAGANSETT ELECTRIC COMPANY
Re: Rules Prescribing Standards for Electric Utilities
Docket No. D-04-16
Witness: Yarger

DIRECT TESTIMONY

OF

PETER D. YARGER

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I. Introduction

Q. Please state your name and business address.

A. My name is Peter D. Yarger, and my business address is 925 Canal Street, Bristol, Pennsylvania, 18929.

Q. By whom are you employed and in what position?

A. I am employed by Advent Design Corporation as a Project Manager. Advent Design Corporation is an engineering consulting and custom automation firm providing a variety of engineering services to manufacturers and utilities in the Mid-Atlantic and Northeast.

Q. Please describe your educational background and training.

A. I have a Bachelor of Science in Physics from the United States Naval Academy in Annapolis, Maryland and a Master of Science in Electrical Engineering from Drexel University in Philadelphia, Pennsylvania.

Q. What is your professional background?

A. I served as an officer in the U.S. Navy for six years where, following shipboard duty, I worked as a project manager for ship repair projects at Norfolk and Philadelphia Naval Shipyards. After leaving the military, I worked for seven years for two laboratory and testing equipment manufacturers holding various positions in production management, field service, sales, and marketing. Since 2000, I have worked for Advent Design Corporation first as a Senior Project Engineer and now as a Project Manager. My

projects have focused on manufacturing consulting, pharmaceutical R&D, and meter services for utilities. I am a registered Professional Engineer (Industrial Engineering) in the Commonwealth of Pennsylvania (License No. PE048850).

Q. Have you testified before the Division or any other regulatory commission?

A. I have not testified before the Division. However, I have testified previously before the New York State Public Service Commission on matters relating to the in-service testing of gas meters.

II. Purpose of Testimony

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to describe the new in-service meter testing standards being proposed by The Narragansett Electric Company ("Narragansett" or "Company") in this proceeding. In addition, I will describe the estimated benefits to Narragansett and its customers of implementing the new meter testing plan.

III. Description of the Proposed Meter Sampling Plan

Q. Please describe the Company's proposed statistical testing plan.

A. The statistical testing plan being proposed by the Company is a variables plan based on the precepts of ANSI/ASQC Z1.9-1993, *Sampling Procedures and Tables for Inspection by Variables for Percent Nonconforming.*

Q. What is a variables testing plan?

A. A variables testing plan is one where a specific parameter is measured during testing and then used for a statistical analysis. In the Company's plan, this variable will be the weighted average of light load and full load readings as measured during bench testing of the sampled electric meters at the Company's meter shop. The other type of testing plan is an "attributes plan," where one is directly checking for a pass/fail result of the parameter against the prescribed standard.

Q. Please describe the background of ANSI/ASQC Z1.9.

A. ANSI/ASQC Z1.9 is the civilian version of MIL-STD 414, an inspection plan developed by the U.S. military in the 1950s for the testing of ammunition and other ordnance items. Both MIL-STD 414 and ANSI/ASQC Z1.9 have been used by both the military and civilian industry for nearly fifty years for both the inspection of incoming material and the inspection of finished items and in-process material.

Q. Why was ANSI/ASQC Z1.9 selected for this particular application?

A. ANSI/ASQC Z1.9 is widely used for electric and gas meter testing applications, and since the Company was already capturing the required data on electric meters during

testing, it was determined that it would be fairly easy for them to transition to this particular statistical testing plan. Additionally, ANSI/ASQC Z1.9 is one of the two statistical testing plans specifically listed by ANSI C12.1, *Code for Electricity Metering*, the national guidance for matters related to electric metering.

Q. How does the ANSI/ASQC Z1.9 plan proposed by the Company work?

A. The main elements of the proposed testing plan are as follows:

- The meter population will be divided into groups by meter manufacturer and type of meter;
- The minimum required sample size for each meter group will be based solely on each group's population size, which eliminates the risk that any meter group will be under-represented in the annual test sample;
- Test results for each group will be analyzed using the weighted average result to determine the mean and standard deviation of the weighted average for each group;
- These statistical values will be used for each meter group to calculate a numerical estimate of the failing percentage of the meters in each group. This value is known as percent nonconformance;
- The actual (calculated) percent nonconformance for each group will be compared to the allowed percent nonconformance to determine the pass/fail status for the group; and
- Narragansett will take appropriate actions for the remediation or disposition of any failing groups.

Please refer to Attachment B of the Company's filing for details and sample calculations of how the plan will work.

Q. Has the Company proposed language in the Division's Rules Prescribing Standards for Electric Utilities that would add this new type of testing methodology as a Division accepted in-service testing practice?

A. Yes. The Company has proposed language changes to the Division's present Rules Prescribing Standards that would permit this type of testing to be conducted in addition to the two test plans that are already in effect. A copy of the proposed language is provided in Attachment A to the Company's filing.

Q. Have you reviewed the Company's proposed revisions to the Division's Rules Prescribing Standards for Electric Utilities?

A. Yes.

Q. Do these proposed revisions fairly reflect the components of the Company's proposed statistical meter testing plan?

A. Yes.

IV. Benefits of the Proposed Meter Sampling Plan

Q. What are the benefits of the Company's proposed statistical sampling plan?

A. The key benefits of the Company's proposed statistical sampling plan are enumerated in the petition on this matter. In summary, the proposed statistical sampling plan will allow the Company to select a statistically valid, representative sample of the appropriate size for each type of meter or meter group. The testing of these meters will provide data that are indicative of the overall meter group. The nature of these data will provide an accurate picture of each meter group's performance and will allow for accurate decisions to be made on the continued service of each meter group. With this, the Company will now be conducting condition-based maintenance on its meters versus time-based maintenance. In the long-term, this will improve the overall accuracy of the meter population, especially as the data are incorporated into meter purchasing decisions. In addition, as described by Ms. Brown, the new testing plan will also reduce the Company's overall in-service testing expenses.

Q. Have statistical sampling plans been approved in other states?

A. Yes. A summary of the in-service electric meter testing programs approved in other states is included in Attachment D.

V. Conclusion

Q. Does that conclude your testimony?

A. Yes, it does.

THE NARRAGANSETT ELECTRIC COMPANY
Re: Rules Prescribing Standards for Electric Utilities
Docket No. D-04-16
Witness: Brown

DIRECT TESTIMONY

OF

LAURIE T. BROWN

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I. Introduction

Q. Please state your name and business address.

A. My name is Laurie T. Brown and my business address is 7437 Henry Clay Boulevard, Liverpool, New York.

Q. By whom are you employed and in what position?

A. I am employed by National Grid Service Company, Inc., as the Director of Lab and Testing Services. The Lab and Testing Services Department provides meter testing services to The Narragansett Electric Company ("Narragansett" or "Company").

Q. Please describe your educational background and training.

A. I have an Associates of Science in Engineering Science from Canton College located in Canton, New York; and a Bachelor of Science in Civil and Environmental Engineering from Clarkson University located in Potsdam, New York.

Q. What is your professional background?

A. I have worked for Niagara Mohawk Power Corporation and now National Grid for 22 years in various technical positions. I started as a Quality Assurance Engineer at Nine Mile Point Nuclear Plant, worked as an Engineer in Gas Research and Development and later as an Engineer in Niagara Mohawk's Gas Engineering Department. I was then promoted to the Gas Engineering Supervisor and Gas Operations Support Manager before taking the job as Lab and Testing Services Director. I have been a senior member

of the Society of Women Engineering since 1989; have held a number of positions and served on a number of professional committees. I currently serve as the Vice President for the Board of Directors for Dig Safely New York, the one-call center for upstate New York which works to prevent damage to underground facilities through location and protection of facilities.

II. Purpose of Testimony

Q. What is the purpose of your testimony in this proceeding?

A. Narragansett is proposing to implement a new electric meter testing plan based on statistical sampling. The proposed testing plan is described in detail in the pre-filed testimony of Mr. Peter Yarger, which is also being filed today. The purpose of my testimony is to describe Narragansett's estimated cost savings associated with implementing the new proposed meter testing plan. In addition, I will discuss the Company's proposed implementation of the new testing plan.

III. Description of Estimated Cost Savings

Q. Please describe the Company's estimated cost savings associated with implementing the new meter testing plan.

A. The estimated cost savings associated with the proposed plan are derived from the reduction in meters to be removed from the field and tested. The proposed plan will reduce the number of meters tested each year by approximately 2,900, and result in estimated cost savings of approximately $80,000 annually. Cost savings resulting from the plan will not result in any staff reductions, but will allow field and testing staff to perform other assigned work and reduce overall charges to overtime.

Q. How would these costs savings impact Narragansett's customers?

A. Although I am not a rate expert, it is my understanding that, assuming that the Company's rates are set based on a long-term rate plan, changes in costs incurred to implement the meter testing plan would not affect the base rates Narragansett's customers pay for distribution service. However, to the extent that the Company is operating subject to an earning sharing mechanism (which is my understanding is the case under the current rate plan, as well as what has been proposed under the rate plan settlement filed in Docket No. 3617), any cost savings resulting from the new meter testing plan would contribute to increased earnings, which would be subject to sharing with customers pursuant to the earnings sharing mechanism.

Q. Would the proposed meter testing standards have any adverse economic or service impact on the Company's small business customers?

A. No. To the contrary, small business customers stand only to benefit from the new proposed meter testing standards. Not only will Narragansett's cost of delivery tend to decline over time, but small business customer can also expect that the accuracy of Narragansett's meters would also increase in the long run. This would reduce the possibility of inaccurate meter readings, by identifying poorly performing meter groups which would be removed from service.

IV. Implementation Plan

Q. Assuming the Division adopts the Company's proposed rule changes, how soon would the Company be able to implement the new meter testing procedures?

A. The Company could immediately implement the proposed meter testing procedure upon the effective date of the new rules for the calendar year 2004 meter testing requirements. Narragansett's affiliates, Massachusetts Electric Company, Nantucket Electric Company and Granite State Electric Company have already put the new meter testing procedure in place. In addition, the Company proposes that the new rules would apply for purposes of its annual report to the Division that, in accordance with the new rules, would be filed with the Division no later than March 15, 2005.

V. Conclusion

Q. Does that conclude your testimony?

A. Yes it does.